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10/025,179	12/19/2001	Toru Hirai	P 027 7027 H7631US	6456

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EXAMINER	
TRAN, CON P	

ART UNIT	PAPER NUMBER
2644	

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/025,179	HIRAI ET AL.	
	Examiner	Art Unit	
	Con P. Tran	2644	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *17 October 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-21* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *17* is/are allowed.

6)☒ Claim(s) *1-16 and 18-21* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some *, c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on October 17, 2005 has been entered.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. **Claims 1-6, 11-13, and 18-19** are rejected under 35 U.S.C. 103(a) as being unpatentable over Momii et al. U.S. Patent 6,052,665 (hereinafter, "Momii") in view of Berkhout U.S. Patent 5,142,546, and further in view of Murphy U.S. Patent 5,921,036.

Regarding **claim 1**, Momii teaches a picked-up-sound reproducing method for picking up a sound present in a first sound field and reproducing the picked-up sound in a second sound field (see Figs. 1, 2, 3 and respective portions of the specification), the picked-up-sound reproducing method comprising:

detecting a sound pressure present in the first sound field (speech level detection 101 of detection/conversion 91, Fig. 8; col. 8, lines 29-37 detecting a sound pressure picked up by the first microphone 1, Fig. 3; TV Conferencer A, Fig. 7; i.e., -15dB); and a sound pressure reproduced in the second sound field (speech level detection 101 of detection/conversion 92, Fig. 8; col. 8, lines 29-37 detecting a sound pressure with which the sound picked up by the first microphone and reproduced by the speaker is picked up by the second microphone 25, Fig. 3; TV Conferencer B, Fig. 7; i.e., -10dB); and

adjusting a sound pressure to be reproduced in the second sound field so that the sound pressure present in the first sound field and the sound pressure to be reproduced (radiated by a speaker) in the second sound field (detection/conversion 92, Fig. 8; col. 8, lines 29-37 adjusting a sound pressure to be reproduced by the second-sound-field speaker 26, Terminal B, Figs. 3, 8) are equal (col. 1, line 60 – col. 2, line 9; to equalize transmission level of one terminal A and the other terminal B , Fig. 3; col. 4, lines 1-13; col. 9, lines 1-4; i.e., +5dB), wherein the sound pressure present in the first sound field (-15 dB) is used as a reference value in adjusting the sound pressure (adjusting +15dB) to be reproduced in said second sound field (30 dB; col. 4, lines 1-17; also see col. 2, lines 10-20).

Momii does not explicitly disclose using an acoustical power in sound pressure adjustments. However, using acoustical power in sound pressure adjustments is well known in the art, such as one of Berkhout.

Berkhout discloses a dense network of microphones and loudspeakers in which sound pressure is measured by microphones (col. 7, lines 47-65); sound pressure of a sound filed is based on loudspeaker energy directs to absorptive area (i.e., acoustical power; col. 8, lines 40-41).

It would have been obvious to one of ordinary skill in the art the time the invention was made to incorporate using an acoustical power in sound pressure adjustments of Berkhout teaching with a picked-up-sound reproducing method of Momii for purpose of keeping the correct localization and in each frequency band with any desired level as suggested by Berkhout in column 6, lines 42-43.

However, Momii in view of Berkhout does not explicitly disclose microphones and loudspeakers are on a wall so that using an entire wall surface of the first sound field to equalize an acoustical power in the first sound field and an acoustical power radiated from a speaker in the second sound field.

Murphy teaches a two-way communication means (col. 2, lines 60-61) including combination speaker/microphone unit (76, Fig. 2) that is installed on wall 12A (col. 6, lines 32-41).

It would have been obvious to one of ordinary skill in the art of communication at the time the invention was made to incorporate a teaching communication means of

Murphy to communication system of Momii, Berkhout combination for purpose of providing two-way communication as suggested by Murphy in column 6, lines 31-35.

Regarding **claim 3**, Momii teaches a picked-up-sound reproducing method for picking up a sound present in a first sound field (Terminal A, Fig. 3) to reproduce the picked-up sound in a second sound field (Terminal B, Figs. 3) and picking up a sound present in the second sound field to reproduce the picked-up sound in the first sound field (see Figs. 1, 2, 3 and respective portions of the specification), the picked-up-sound reproducing method comprising:

detecting a sound pressure present in the first sound field and a sound pressure reproduced in the second sound field (speech level detection 101 of detection/conversion 91, Fig. 8; col. 8, lines 29-37 detecting a sound pressure picked up by the first microphone 1, Fig. 3; TV Conferencer A, Fig. 7; i.e., -15dB), and adjusting a sound pressure to be reproduced in the second sound field so that the sound pressure present in the first sound field and the sound pressure to be reproduced (radiated by a speaker) in the second sound field (detection/conversion 92, Fig. 8; col. 8, lines 29-37 adjusting a sound pressure to be reproduced by the second-sound-field speaker 26, Terminal B, Figs. 3, 8) are equal (col. 1, line 60 – col. 2, line 9; to equalize transmission level of one terminal A and the other terminal B , Fig. 3; col. 4, lines 1-13; col. 9, lines 1-4; i.e., +5dB), wherein the sound pressure present in the first sound field (-15 dB) is used as a reference value in adjusting the sound

pressure (adjusting +15dB) to be reproduced in said second sound field (30 dB; col. 4, lines 1-17; also see col. 2, lines 10-20); and

detecting a sound pressure present in the second sound field and a sound pressure reproduced in the first sound field (detection/conversion 92, Fig. 8; col. 8, lines 29-37 adjusting a sound pressure to be reproduced by the second-sound-field speaker 26, Terminal B, Figs. 3, 8), and adjusting a sound pressure to be reproduced in the first sound field so that the sound pressure present in the second sound field and the sound pressure to be reproduced in the first sound field (detection/conversion 91 Fig. 8; col. 8, lines 29-37 adjusting a sound pressure to be reproduced (radiated by the first-sound-field speaker 4) are equal (col. 1, line 60 – col. 2, line 9; to equalize transmission level of one terminal A and the other terminal B , Fig. 3; col. 4, lines 1-13; col. 9, lines 1-4; i.e., +5dB), wherein the sound pressure present in the second sound field (30 dB) is used as a reference value in adjusting the sound pressure (adjusting +15dB) to be reproduced in said first sound field (-15 dB; col. 4, lines 1-17; also see col. 2, lines 10-20).

Momii does not explicitly disclose using an acoustical power in sound pressure adjustments. However, using acoustical power in sound pressure adjustments is well known in the art, such as one of Berkhout.

Berkhout discloses a dense network of microphones and loudspeakers in which sound pressure is measured by microphones (col. 7, lines 47-65); sound pressure of a sound filed is based on loudspeaker energy directs to absorptive area (i.e., acoustical power; col. 8, lines 40-41).

It would have been obvious to one of ordinary skill in the art the time the invention was made to incorporate using an acoustical power in sound pressure adjustments of Berkhout teaching with a picked-up-sound reproducing method of Momii for purpose of keeping the correct localization and in each frequency band with any desired level as suggested by Berkhout in column 6, lines 42-43.

However Momii in view of Berkhout does not explicitly disclose microphones and loudspeakers are on a wall so that using an entire wall surface of the first sound field to equalize an acoustical power in the first sound field and an acoustical power radiated from a speaker in the second sound field.

Murphy teaches a two-way communication means (col. 2, lines 60-61) including combination speaker/microphone unit (76, Fig. 2) that is installed on wall 12A (col. 6, lines 32-41).

It would have been obvious to one of ordinary skill in the art of communication at the time the invention was made to incorporate a teaching communication means of Murphy to communication system of Momii, Berkhout combination for purpose of providing two-way communication as suggested by Murphy in column 6, lines 31-35.

Regarding **claim 4**, this claim is essentially similar to Claim 3. Claim 4 therefore is interpreted and rejected for the same reasons of Claim 3.

Regarding **claim 5,** Momii teaches a picked-up-sound reproducing method as claimed in claim 3 wherein adjustment of the sound pressure to be reproduced in the

first sound field and adjustment of the sound pressure to be reproduced in the second sound field is performed with a time difference therebetween (predetermined period time t), and wherein when the sound pressure to be reproduced in the first sound field is to be adjusted, operations for picking up a sound present in the first sound field to reproduce the picked-up sound in the second sound field are stopped (the reception level detecting portion 22 measures an average signal peak value of the tone signal received by the speech CODEC 2a during a predetermined period of time t, Figs. 5 and 6; col. 7, lines 18-33; then calculated the difference for adjustment), and when the sound pressure to be reproduced in the second sound field is to be adjusted, operations for picking up a sound present in the second sound field to reproduce the picked-up sound in the first sound field are stopped (the reception level detecting portion 22 measures an average signal peak value of the tone signal received by the speech CODEC 2a during a predetermined period of time t, Figs. 5 and 6; col. 7, lines 18-33; then calculated the difference for adjustment).

Regarding **claim 6**, Momii teaches a picked-up-sound reproducing apparatus (see Figs. 1, 2, 3, and respective portions of the specification) comprising:

a first microphone (1) that is provided in first sound field to pick up a sound present in the first sound field (terminal A, Fig. 3; col. 5, lines 15-33; col. 6, lines 6-14; ;

a signal transfer pathway (from terminal A Fig. 3 to network 6, Fig. 2) that transmits the sound, picked up by the first microphone (1), to a second sound field (terminal B, 23, Fig. 3, col. 5, lines 42-47);

a speaker (26, Fig. 3) that is provided in a second sound field to reproduce the sound transmitted via the signal transfer pathway (col. 5, lines 42-51);

a second microphone (25, Fig. 3) that is provided in the second sound field to pick up the sound reproduced by the speaker (col. 5, lines 42-51);

a first detection section (electronic switch, col. 5, lines 15-25) that detects a sound pressure picked up by the first microphone (1a,col. 4, line 65 – col. 5, line 12);

a second detection section (22, Figs. 3, 5, 6, col. 6, lines 6-14) that detects a sound pressure with which the sound picked up by the first microphone and reproduced by the speaker is picked up by the second microphone (second detection circuit 22 detects signal from other entity terminal 23; sound from speaker and input speech, col. 6, lines 6-14); and

an adjustment section (electronic volume 3, Figs. 2, 3; col. 4, lines 31-35) that adjusts a sound pressure to be reproduced by the speaker (26) in such a manner that the sound pressures detected by the first detection section and the second detection section are equal (col. 1, line 60 – col. 2, line 9; to equalize transmission level of one terminal A and the other terminal B , Fig. 3; col. 4, lines 1-13; col. 9, lines 1-4; i.e., +5dB), wherein the sound pressure present in the first sound field (-15 dB) and said second sound field (30 dB) are used as a reference value in adjusting the sound pressure (adjusting +15dB) to be reproduced by the speaker (26; col. 4, lines 1-17; also see col. 2, lines 10-20).

Momii does not explicitly disclose using an acoustical power in sound pressure adjustments. However, using acoustical power in sound pressure adjustments is well known in the art, such as one of Berkhout.

Berkhout discloses a dense network of microphones and loudspeakers in which sound pressure is measured by microphones (col. 7, lines 47-65); sound pressure of a sound filed is based on loudspeaker energy directs to absorptive area (i.e., acoustical power; col. 8, lines 40-41).

It would have been obvious to one of ordinary skill in the art the time the invention was made to incorporate using an acoustical power in sound pressure adjustments of Berkhout teaching with a picked-up-sound reproducing method of Momii for purpose of keeping the correct localization and in each frequency band with any desired level as suggested by Berkhout in column 6, lines 42-43.

However Momii in view of Berkhout does not explicitly disclose microphones and loudspeakers are on a wall so that using an entire wall surface of the first sound field to equalize an acoustical power in the first sound field and an acoustical power radiated from a speaker in the second sound field.

Murphy teaches a two-way communication means (col. 2, lines 60-61) including combination speaker/microphone unit (76, Fig. 2) that is installed on wall 12A (col. 6, lines 32-41).

It would have been obvious to one of ordinary skill in the art of communication at the time the invention was made to incorporate a teaching communication means of

Murphy to communication system of Momii, Berkhout combination for purpose of providing two-way communication as suggested by Murphy in column 6, lines 31-35.

Regarding **claim 2**, this claim merely reflects the method to the apparatus claim of claim 6 and is therefore rejected for the same reasons.

Regarding **claim 11**, Momii in view of Murphy teaches picked-up-sound reproducing apparatus as claimed in claim 6. Momii further teaches wherein the speaker and the second microphone to be combined with the speaker are together incorporated in a speaker box in substantially parallel to each other (speaker/microphone units of Murphy are mounted on wall 12A; Fig. 2, col. 6, lines 32-39). The speaker/microphone units may be horizontally spaced about two feet to ten feet apart, depending upon the microphone sensitivity (col. 7, lines 27-33).

However, Momii in view of Murphy does not explicitly disclose speaker/microphone units are side-by-side adjoining relation to each other.

It would have been obvious to one of ordinary skill in the art of communication at the time the invention was made to reduce the spacing between speaker/microphone units to side-by-side adjoining each other in according to microphone sensitivity in order to confirm food ordering, to reduce the chance for errors, as suggested by Murphy in column 7, lines 17-19.

Regarding **claim 12**, Momii in view of Murphy teaches picked-up-sound reproducing apparatus as claimed in claim 6. Momii further teaches wherein the sound picked up by the first microphone is transmitted, with a gain of 1, to the second sound field via the signal transfer pathway, and the first detection section detects a sound pressure from a sound signal transmitted to the second sound field via the signal transfer pathway (through speech CODEC portion 2a without volume 3 adjustment; Fig. 3, col. 4, lines 36-52).

Regarding **claim 13,** Momii teaches a picked-up-sound reproducing apparatus (see Figs. 1, 2, 3, and respective portions of the specification) comprising:

a first microphone (1) that is provided in first sound field to pick up a sound present in the first sound field (terminal A, Fig. 3; col. 5, lines 15-33; col. 6, lines 6-14; ;

a first signal transfer pathway (from terminal A Fig. 3 to network 6, Fig. 2) that transmits the sound, picked up by the first microphone (1), to a second sound field (terminal B, 23, Fig. 3, col. 5, lines 42-47);

a second sound field speaker (26, Fig. 3) that is provided in a second sound field to reproduce the sound transmitted via the first signal transfer pathway (col. 5, lines 42-51);

a second microphone (25, Fig. 3) that is provided in the second sound field to pick up a sound present in the second sound field (col. 5, lines 42-51);

a second signal transfer pathway (from terminal B Fig. 3 to network 6, Fig. 2) that transmits the sound, picked up by the second microphone (25), to the first sound field (terminal B, 23, Fig. 3, col. 5, lines 42-47);

a first sound field speaker (4, Fig. 4) that is provided in the first sound field to reproduce the sound transmitted via the second signal transfer pathway (receiving, col. 6, lines 33-39);

a first detection section (speech level detection 101 of detection/conversion 91, Fig. 8; col. 8, lines 29-37) that detects a sound pressure picked up by the first microphone (1, Fig. 3; TV Conferencer A, Fig. 7; i.e., -15dB);

a second detection section (speech level detection 101 of detection/conversion 92, Fig. 8; col. 8, lines 29-37) that detects a sound pressure with which the sound picked up by the first microphone and reproduced by the speaker is picked up by the second microphone (25, Fig. 3; TV Conferencer B, Fig. 7; i.e., -10dB); and

an first adjustment section (detection/conversion 92, Fig. 8; col. 8, lines 29-37) that adjusts a sound pressure to be reproduced by the second-sound-field speaker (26, Terminal B, Figs. 3, 8) in such a manner that the sound pressures detected by the first detection section and the second detection section are equal (col. 1, line 60 –col. 2, line 9; to equalize transmission level of one terminal A and the other terminal B , Fig. 3; col. 4, lines 1-13; col. 9, lines 1-4; i.e., +5dB), wherein the sound pressure present in the first sound field (-15 dB) is used as a reference value in

adjusting the sound pressure (adjusting +15dB) to be reproduced in said second sound field (30 dB; col. 4, lines 1-17; also see col. 2, lines 10-20);

a third detection section (speech level detection 101 of detection/conversion 92, Fig. 8; col. 8, lines 29-37) that detects a sound pressure present in the second sound field picked up by the second microphone (25, Fig. 3; TV Conferencer B, Fig. 7; i.e., -10dB);

a fourth detection section (speech level detection 101 of detection/conversion 91, Fig. 8; col. 8, lines 29-37) that detects a sound pressure with which the sound present in the second sound field picked up by the second microphone (25) and reproduced by the first-sound-field speaker (4) is picked up by the first microphone (1; fourth detection circuit 101 detects input signal from terminal A, Fig. 3; sound from speaker 4 and input speech at microphone 1, col. 6, lines 6-14; col. 8, lines 53-61; i.e., -15dB);

and a second adjustment section (detection/conversion 91 Fig. 8; col. 8, lines 29-37) that adjusts a sound pressure to be reproduced by the first-sound-field speaker (4) in such a manner that the sound pressures detected by the third detection section and the fourth detection section are equal (col. 1, line 60 –col. 2, line 9; to equalize transmission level of one terminal A and the other terminal B , Fig. 3; col. 4, lines 1-13; col. 9 lines 53-61; i.e., 0dB), wherein the sound pressure present in the first sound field (-15 dB) is used as a reference value in adjusting the sound pressure (adjusting +15dB) to be reproduced in said second sound field (30 dB; col. 4, lines 1-17; also see col. 2, lines 10-20).

Momii does not explicitly disclose using an acoustical power in sound pressure adjustments. However, using acoustical power in sound pressure adjustments is well known in the art, such as one of Berkhout.

Berkhout discloses a dense network of microphones and loudspeakers in which sound pressure is measured by microphones (col. 7, lines 47-65); sound pressure of a sound filed is based on loudspeaker energy directs to absorptive area (i.e., acoustical power; col. 8, lines 40-41).

It would have been obvious to one of ordinary skill in the art the time the invention was made to incorporate using an acoustical power in sound pressure adjustments of Berkhout teaching with a picked-up-sound reproducing method of Momii for purpose of keeping the correct localization and in each frequency band with any desired level as suggested by Berkhout in column 6, lines 42-43.

However Momii in view of Berkhout does not explicitly disclose microphones and loudspeakers are on a wall so that using an entire wall surface of the first sound field to equalize an acoustical power in the first sound field and an acoustical power radiated from a speaker in the second sound field.

Murphy teaches a two-way communication means (col. 2, lines 60-61) including combination speaker/microphone unit (76, Fig. 2) that is installed on wall 12A (col. 6, lines 32-41).

It would have been obvious to one of ordinary skill in the art of communication at the time the invention was made to incorporate a teaching communication means of

Murphy to communication system of Momii, Berkhout combination for purpose of providing two-way communication as suggested by Murphy in column 6, lines 31-35.

Regarding **claim 18,** this claim is essentially similar to Claim 11 and is rejected for the reasons stated above regarding that claim.

Regarding **claim 19,** this claim is essentially similar to Claim 12 and is rejected for the reasons stated above regarding that claim.

4. **Claims 7 and 14** are rejected under 35 U.S.C. 103(a) as being unpatentable over Momii et al. U.S. Patent 6,052,665 (hereinafter, "Momii") in view of Berkhout U.S. Patent 5,142,546, in view of Murphy U.S. Patent 5,921,036, and further in view of Flannagan et al. U.S. Patent 4,008,376.

Regarding **claim 7**, Momii in view of Berkhout, in view of Murphy teaches picked-up-sound reproducing apparatus as claimed in claim 6. Momii further teaches wherein a plurality of the picked-up-sound reproducing apparatus (microphone 1 at terminal A, microphone 25 at terminal B, Fig. 3) are provided between the first sound field and the second sound field (terminal A, terminal B, Fig. 3) to provide a processing channel (for transmitting, receiving), and each processing channel includes the second microphone (25) and the speaker (26; col. 5, lines 42-58).

However, Momii, Berkhout, Murphy in combination does not explicitly disclose a plurality processing channels; and wherein the second microphones and the speakers of individual ones of the processing channels in the second sound field are arranged in corresponding relation to arrangement of the first microphones of the individual processing channels in the first sound field.

Flannagan teaches a loudspeaking teleconferencing circuit having a plurality of processing channels: speaker phone sets S4-1 to S4-n; Fig. 6, location 604, (first sound field), speaker phone sets S6-1 to S6-n; Fig. 6, location 606, (second sound field); and wherein the second microphones and the speakers of individual ones of the processing channels in the second sound field are arranged in corresponding relation to arrangement of the first microphones of the individual processing channels in the first sound field (i.e., S6-1 - S6-n corresponding to S4-1 - S4-n; Fig. 6, col. 10, line 46 – col. 11, line 2).

It would have been obvious to one of ordinary skill in the art of communication at the time the invention was made to incorporate a teaching loudspeaking teleconferencing of Flannagan to a picked-up-sound reproducing apparatus of Momii, Berkhout, Murphy in combination of for purpose of reducing reverberation and noise pickup, as suggested by Flannagan in column 10, lines 17-18.

Regarding **claim 14,** this claim is essentially similar to Claim 7 and is rejected for the reasons stated above regarding that claim. It should be noted that each of

microphone and speaker at location 604 and 606 are capable of being arranged in horizontal symmetrical relationship.

5. **Claims 8-10, and 15-16** are rejected under 35 U.S.C. 103(a) as being unpatentable over Momii et al. U.S. Patent 6,052,665 (hereinafter, "Momii") in view of Berkhout U.S. Patent 5,142,546, in view of Murphy U.S. Patent 5,921,036, in view of Flannagan et al. U.S. Patent 4,008,376, and further in view of Asayama U.S. Patent 5,784,467.

Regarding **claim 8**, Momii, Berkhout, Murphy, Flannagan in combination teaches a picked-up-sound reproducing apparatus as claimed in claim 7 wherein the adjustment section adjusts the sound pressure to be reproduced by the speaker so that a value obtained by modifying the sound pressure (using electronic volume 3, Figs. 2, 3; col. 4, lines 31-35) detected by the first detection section (electronic switch, col. 5, lines 15-25) or the second detection section (22, Figs. 3, 5, 6, col. 6, lines 6-14).

However, Momii, Berkhout, Murphy, Flannagan in combination does not explicitly disclose to determine the value by dividing an area of the one wall surface of the second sound field by a total number of the processing channels equals a value of the sound pressure detected by the second detection section or the first detection section.

Asayama teaches a method and apparatus for actually reproducing acoustic characteristics of sound waves in an existing real space (col. 2, lines 7-12) in which a wall surface is divided into a plurality of areas which are virtual windows; and, acoustic

characteristics of the sound is determined at each of the virtual windows by using a loud speaker in position corresponding to the virtual window (col. 3, lines 19-38)

It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate Asayama teaching of reproducing acoustic characteristics of sound waves to a picked-up-sound reproducing apparatus of Momii, Berkhout, Murphy, Flannagan in combination for purpose of providing sound waves radiating from the wave source form the direct sounds and the reflected sounds to reach the listener all possible directions, as suggested by Asayama in column 12, lines 47-51.

Regarding **claim 9**, Momii, Berkhout, Murphy, Flannagan in combination teaches a picked-up-sound reproducing apparatus as claimed in claim 7. Momii, Berkhout, Murphy, Flannagan in combination further teaches wherein the first microphones of the individual processing channels are arranged in the first sound field in a linear configuration, and the second microphones and speakers of the individual processing channels are arranged in the second sound field in a linear configuration (speaker/microphone units of Murphy are mounted on wall 12A; Fig. 2, col. 6, lines 32-39; see Momii terminal A, terminal B, Fig. 3). It should be noted that Murphy discloses a food preparer 72 may use headset 80 (instead of speaker/microphone of an intercom unit).

Regarding **claim 10**, Momii, Berkhout, Murphy, Flannagan in combination teaches a picked-up-sound reproducing apparatus as claimed in claim 7. Momii,

Berkhout, Murphy, Flannagan in combination further teaches wherein the first sound field and the second sound field (see Momii terminal A, terminal B, Fig. 3) are separated by a window in the form of a transparent plate member made of glass (see Murphy; transparent glass window, Fig. 2; col. 5, lines 17-23) and wherein the second microphones and speakers of the individual processing channels are arranged in the second sound field in a linear configuration along lower edges of the window, and the first microphones of the individual processing channels are arranged in the first sound field in a linear configuration along lower edges of the window (see Murphy; Fig. 2; col. 6, lines 32-39)

Regarding **claim 15,** this claim is essentially similar to Claim 8 and is rejected for the reasons stated above regarding that claim.

Regarding **claim 16,** this claim is essentially similar to Claim 9 and is rejected for the reasons stated above regarding that claim.

6. **Claim 20** is rejected under 35 U.S.C. 103(a) as being unpatentable over Momii et al. U.S. Patent 6,052,665 (hereinafter, "Momii") in view of Berkhout U.S. Patent 5,142,546, in view of Murphy U.S. Patent 5,921,036, and further in view of Shimauchi et al. U.S. Patent 5,661,813 (hereinafter, "Shimauchi").

Regarding **claim 20**, Momii in view of Berkhout in view of Murphy teaches picked-up-sound reproducing apparatus as claimed in claim 13.

However, Momii, Berkhout, Murphy in combination does not explicitly disclose a first echo canceller that removes, from a sound signal picked up by the first microphone, a sound component reproduced by the first-sound-field speaker; and a second echo canceller that removes, from a sound signal picked up by the second microphone, a sound component reproduced by the second-sound-field speaker.

Shimauchi teaches an apparatus for echo cancellation for a multi-channel teleconferencing system (Fig. 4; col. 5, lines 7-12) in which:

a first echo canceller (22a2, Fig. 4) that removes, from a sound signal picked up by the first microphone, a sound component reproduced by the first-sound-field speaker (col. 5, lines 12-50; col. 19, lines 46-56); and

a second echo canceller (22b2, Fig. 4) that removes, from a sound signal picked up by the second microphone, a sound component reproduced by the second-sound-field speaker (col. 5, lines 12-50; col.19, lines 46-56).

It would have been obvious to one of ordinary skill in the art of communication at the time the invention was made to incorporate echo cancellation for a multi-channel teleconferencing system of Shimauchi with a picked-up-sound reproducing apparatus of Momii, Berkhout, Murphy in combination for purpose of permitting cancellation of echoes, as suggested by Shimauchi in column 5, lines 10-12.

7. **Claim 21** is rejected under 35 U.S.C. 103(a) as being unpatentable over Momii et al. U.S. Patent 6,052,665 (hereinafter, "Momii") in view of Berkhout U.S. Patent 5,142,546, in view of Murphy U.S. Patent 5,921,036, and further in view of Miyahira et al. (hereinafter, "Miyahira") U.S. Patent 5,321,848.

Regarding **claim 21**, Momii, Berkhout, Murphy in combination teaches picked-up-sound reproducing apparatus as claimed in claim 6. Momii in view of Murphy further discloses each sound field having a speaker/microphone unit (76, Fig. 2, see Murphy). However, Momii in view of Murphy does not explicitly disclose wherein a sound-absorbing material is disposed around or in front of the microphone and speaker.

Miyahira discloses a wireless communication system (10, Fig. 1) having absorbent materials (37, 44) surrounding microphone (34) and speaker (42), respectively (Fig. 1, col. 4, lines 33-52).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate a communication of Miyahira teaching with a picked-up-sound reproducing apparatus of Momii, Berkhout, Murphy in combination for purpose of being substantially free of unwanted feedback effects, as suggested by Miyahira in column 2, lines 59-60.

Allowable Subject Matter

8. **Claim 17** is allowed.

As to **claim 17,** the allowable subject matter of dependent claim 17 has been incorporated into claim 13. Accordingly, claim 17 is allowed.

Response to Arguments

9. Applicant's arguments filed October 17, 2005 regarding claims 1-16, and 18-21 have been fully considered but are moot in view of the new grounds of rejection.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Con P. Tran whose telephone number is (571) 272-7532. The examiner can normally be reached on M - F (8:30 AM - 5:00 PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor Vivian C. Chin can be reached on (571) 272-7848. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306; and 571-273-8300 effective July 15, 2005.

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you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

cpt CPJ
November 4, 2005

XU MEI
PRIMARY EXAMINER